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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,413	01/10/2002	Vladimir I. Miloushev	6097-0003-US	9045

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MORGAN, LEWIS & BOCKIUS, LLP.
2 PALO ALTO SQUARE
3000 EL CAMINO REAL
PALO ALTO, CA 94306

EXAMINER	
PRIETO, BEATRIZ	

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,413	MILOUSHEV ET AL.	
	Examiner	Art Unit	
	Prieto B.	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to Amendment filed 11/18/05, claims 35-55 have been examined and remain pending.

2. Claims 35-54 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter has been obviated by the amendment to claim 35, and is hereby withdrawn.

Claim Rejection under 35 USC 102

3. Quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action may be found in previous office action.

4. Claim 35 is rejected under 35 U.S.C. 102(e) as being anticipated by Wang et. al. (US 6,826,613) (Wang hereafter)

Regarding claim 35, Wang teaches a system (10) comprising:

a group of client computers (1010-1012 of Fig. 10) coupled by a communication medium to a group of file servers (1094-1096 of Fig. 10) (Wang: col 3/lines 41-45) through a device (120 of Fig. 2A or Switch 1020 of Fig. 10) in a computer network (Wang: col 4/line 20-25, 39-46), the device comprising a switch fabric means (226 of Fig. 2a) (col 6/lines 2-12);

aggregating directories of multiple file systems in the group of file servers by presenting them as a single directory, i.e. accessible via a single identifier (Wang: 21/lines 23-40, col 18/lines 3-13), said aggregating at the file switch (the switch aggregated file severs see col 3/lines 33-45, the storage aggregation is a function of the file switch 1020 of Fig. 10, the switch including two types of storage aggregation, basic RAID support 1070 and virtual disks 1072-1074, see col 21/lines 23-40); and

aggregating file objects of the multiple file systems in the group of file servers (Wang: col 21/lines 23-40) by presenting them as a single file object to the respective client computer of the group of client computers (Wang: col 1/lines 45-50, col 2/lines 21-34, 50-52, col 20/lines 47-54).

Claim Rejection under 35 USC 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 36-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et. al. (US 6,826,613) (Wang hereafter) in view of Thomas (US 5,838,970).

Regarding claims 36, Wang teaches aggregating the namespace of the multiple file systems by:

a switch configured to handle requests between a plurality of client and storage devices (col 6/lines 1-12), the switch storing a directory associated with the plurality of storage devices (col 7/lines 35-45), and

coupling a group of clients (1010-1012 of Fig. 10) to a group of file servers (1094-1096 of Fig. 10) through a switch (1020 of Fig. 10) in a computer network (col 6/lines 1-12);

aggregating namespace of multiple file system in the group of file server by performing the following storing, receiving, applying and executing functions:

storing a set of mapping rules in file switch (col 7/lines 35-45);

receiving a file access transaction from a client (col 7/lines 35-45), comprising a data object request (col 7/lines 43-46) comprising a packet (col 4/lines 53-58), a selected server hosting requested file in the group of file servers (col 11/lines 1-10), a path name (e.g. an address) (col 8/lines 10-11, 19-22);

applying the set of name-mapping rules to the "user path" name to generate a "server path" name, i.e. an address (col 7/lines 35-45, col 8/lines 47-52) to the device hosting the file (col 8/lines 49-52, 24/lines 49-53); and

executing the file access transaction in accordance with the selected server by accessing the selected server hosting requested file (col 17/lines 1-31) via file access protocols (col 17/lines 41-53);

aggregating namespaces of multiple file systems appearing a one contiguous name space at the device (120) switch to the group of clients (col 18/lines 3-8, col 16/lines 6-col 17/line 21); although Wang teaches where the client's request for an object file includes an address, he does not explicitly teach where the request includes a file name nor aggregating a namespace of multiple file systems;

Thomas teaches a system (20) comprising coupling a client computers (30) (col 2/lines 26-29) to file servers (24) though a device (22) in a computer network, the network comprising

receiving a file access transaction request from a client, including a object reference identifying the desired object operation and any required parameters (col 2/lines 26-32), including a specified object (col 10/lines 21-24), the object type (col 21/lines 55-61), and a specified file data, e.g. location entry (col 9/lines 6-8, identifier and address col 22/lines 3-16);

applying the set of name-mapping rules to the "user path" name to generate a "server path" name, particularly

a repository (36/24) containing transaction relate information for a particular object (col 6/lines 27-45, col 8/lines 37-56), including a file name and server path name (col 15/lines 44-col 16/line 9);

applying the information at the repository "set of name-mapping rules" to generate a server path name (col 9/lines 1-56, col 15/line 44-col 16/line 9);

It would have been obvious to one ordinary skilled in the art at the time the invention was made given the teachings of Wang for coupling a group of client to a group of file server through a device in a computer network, the teachings of Thomas for providing clients access to plurality of storage device through a device, would be readily apparent. One would be motivated to given the suggestions by Wang for utilizing other mapping-lookup indexing resource table or cross reference means for determining the location of a requested file and Thomas suggestion of including in user request an identified desired file and any other required parameter, one would be motivated to enable the switch in the Wang system with the repositories taught by Thomas or a combination thereof, such information indicating where the transaction operations executable are located including identifying where the requested files are located and information to access and executed requested operation such the executable file name, the exact file path name, and the type of file and the network protocol over which the file is accessible all located or accessible by the switch, that way the system component accessible are always accessible using the same reference, consequentially, the system is transparently to the user scalable and components may be easily relocated, as suggested by Thomas.

Regarding claim 37, "rules" comprise correspondence between path names and server path names (Thomas: repository (36) col 15/line 11-col 16/line 9 and repository (24) col 9/lines 1-56)

Regarding claim 38, applied to the rules discussed on claim 37, lookup using the file name provided in client's request to select, i.e. "comparing for a match" (Wang: col 7/lines 35-45)

Regarding claim 39, comprising limitations discussed on claim 36, same rationale of rejection is applicable, further selecting a set of file servers among the group of file servers in response to a desired

transaction operation (Wang: abstract), transaction operations include storing the user file (Thomas: col 2/lines 19-22, 59-65); determining a file path for each selected file server (Thomas: col 9/lines 1-41);

updating, in the file switch, information identifying the set of file servers and the file paths corresponding to the user file and updating the directories on the set of file servers to indicate storage of the user file (Thomas: col 2/lines 19-22, 59-65).

Regarding claim 40, having the same limitations discussed on claim 35, same rationale of rejection is applicable. Further, receiving a file access request from the client including the user file name (Thomas; col 2/lines 26-32); mapping the file name with one file server in the set of file servers using information having a correspondence between a set of file servers and the file paths the requested user file (Wang: col 7/lines 35-45).

Regarding claim 41, determining includes mapping the user file path into a corresponding server file path in the set of file servers in accordance with a predetermined set of mapping rules (Thomas: repositories (36/24) containing transaction relate information for a particular object (col 6/lines 27-45, col 8/lines 37-56), including a file name and server path name (col 15/lines 44-col 16/line 9).

Regarding claim 42, performing the file transaction operation described discussed on claim 36 as a file access transaction in this case as a file object update request, updating, in the file switch, information identifying the set of file servers and the file paths corresponding to the user file and updating the directories on the set of file servers in response to file object request (Thomas: col 2/lines 19-22, 59-65, col 16/lines 48-67).

Regarding claim 43, mapping file access transaction request as discussed on claims 35-36, same rationale of rejection is applicable, including receiving files access request from client including file name and file path as discussed above, file access to file hosted by selected server in accordance with NFS or CIFS protocols, i.e. client devices can assert read/write requests in a known manner via the NFS communication protocol to the file server, the file server responds to read requests 24 in accordance with conventional practice, to provide the client devices with access to digital data files stored on the disk media 1090-1092, during write operations, the file server responds to enable the client devices to write selected data onto the disks (Wang: col 16/lines 60-col 17/line 31).

Regarding claim 44, the file objects include at two file objects consisting of "creation" version date, last "modification" update date (Thomas: col 18/lines 53-64).

Regarding claim 45, comprises limitations discussed on claims 35-37, same rationale of rejection is applicable, further, one processor configured to execute computer programs (logic), one port (228-229) adapted to exchange information with the file servers and client computers (Wang: col 6/lines 39-45), the information exchanged including information concerning a specified file data (Wang: col 4/lines 20-58).

Regarding claims 46-51, these claims are substantially the same as claims 36-41, same rationale of rejection is applicable.

Regarding claims 52-54, this claim is substantially the same as claims 42-44, same rationale of rejection is applicable.

7. New claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et. al. (US 6,826,613) (Wang hereafter) in view of Thomas (US 5,838,970).

Regarding claims 35, this claim comprises substantially the same limitations discussed on at least claims (35-36) same rationale of rejection is applicable. Further limitation include: where the file switch comprises a processor for executing a program for carrying out the functions discussed on the above claims (Wang: col 5/lines 11-17, and col 16/lines 64-col 17/line 21), input/output devices "ports" (e.g. 222/229) to exchange information with the file servers and the clients computers above-mentioned (Figs. 1a-b & 10).

Response to Arguments

8. Regarding claim 35 rejected as being anticipated by Wang, it is argued (p. 10 or remarks) that reference does not teach that the aggregation operation are performed by the switch fabric (226), nor does it perform file object aggregation.

In response to the above-mentioned argument, applicant's interpretation of the applied prior art has been considered. Claim 1 as amended recites, at the file switch, aggregating directories of multiple file systems in the group of file server by presenting them as single directory to a respective client computer in the group of client computers.

Wang teaches a method for determining in the first device that a handoff should take place, identifying a second device to take over the session, sending handoff messages to and receiving an acknowledgment from the second device, and reporting the handoff to and receiving an acknowledgment from the switch. The devices applying this method may be disk drives, web servers, database servers, networked computing clusters, load balancing servers, switches or first devices which aggregate second devices or any other device that benefits from being clustered (col 3/lines 33-45)

Wang further discloses: The FIG. 2A provides additional detail on the flow of messages through the switch to the cluster devices. Client 110 opens a connection with cluster by sending a message to the switch 120. The switch 120 includes input processors 221 and 222, logic to process messages from the client 224, switch fabric 226, a forwarding table 227 and output port processors 228 and 229. The cluster consists of the switch 120 and cluster devices 130, 135 and 236 As described above, the cluster devices may be disk drives with file systems, web servers, database servers, networked computing clusters, load balancing servers switches or first devices which aggregate second devices, or any other device which would benefit from clustering (col 6/lines 39-56)

Fig. 10 shows where the switch has an extra processor that is used to support a thinserver (preferably a stripped down UNIX file server) and NAT functionality. It also has subsystems to support storage aggregation, all which run under a local slave server. The clients 1010-1012 communicate in file sessions with the switch functioning as a thin server 1020 to access disks 1090-1092 and disks associated with slave servers 1094-1096. ... Its important to ensure that cross-disk operations, if they occur, appear to execute within one contiguous file system (see col 16/line 60-col 17/line 31). The other subsystem is a slave server on the switch that controls the storage aggregation functions. This architecture also makes the aggregation of several switches straightforward as the switch is considered a slave server (col 17/lines 32-35). A significant feature of a Master/Slave NAS architecture is that it maintains the appearance of one contiguous name space to one or more clients. If the client is traversing directories and each directory resides on a different disk, the client does not know that it is accessing two

physical devices (col 18/line 3-8). For users that desire single large disks, the server provides this functionality by operating its own slave server 1040 (of Switch/Thinserver 1020 see Fig. 10). Storage aggregation is a function that must be provided by a central point-of-control. The present invention includes two types of storage aggregation, basic RAID support 1070 and virtual disks 1072-1074 (within Switch/Thinserver 1020 see Fig. 10). Thus, customers can store a large number of files within a directory (virtual directories 1042) and grow a single file to very large capacity (virtual files 1074) (col 21/lines 23-40).

Arguments that the reference does not teach that the aggregation operation are performed by the device (120 as noted on office action), nor does it perform file object aggregation are not persuasive.

9. Regarding claims 36, 46 and 55 rejected as being unpatentable over Wang in view of Thomas, it is argued (p. 11 of remarks) that the references does not teach a "user path name" mapped to a "server path name", because the definition of these terms are well known in the computer science, exemplifying an AIX document, IBM and Solaris documentation, Sun Microsystems for the definition of the term "path name". It seems that further more applicant asserts that these terms are defined by the claim.

In response to the above-mentioned argument, applicant's specification has been reviewed, however, the claimed terms "user file name", "user path name" or "server path name" do not seem to appear in the invention's disclosure. Claims must be given the broadest reasonable interpretation consistent with the specification. In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969). See also MPEP § 2111 - § 2111.01. When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. In re Zletz, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989). The alluded documentation discussed by applicant does not seem to provide a definition for the claimed terms "user file name", "user path name" or "server path name". Claimed definition(s) of at least claim 36 of the terms "user file name", "user path name" or "server path name", it that these name are included in a transaction "file access", where a set of rules are applied to the "user path name" to generate a "server path name" and where the transaction is executed in according to the generated "server path name", no definition of the claimed terms "user file name", "user path name" or "server path name" is noted on at least claim 36. The broadest reasonable interpretation to this definition has been applied (MPEP 2111). Applicant's arguments are not persuasive.

10. Regarding claims 36, 46 and 55 rejected as being unpatentable over Wang in view of Thomas, it is argued (p. 11 of remarks) that there is not motivation provided within the references for combining the object and the object type mapping features of the Thomas reference into the switch of Wang, because these would require inspection and modification process.

11. Regarding citation of pertinent prior art not relied on, it is argued (p. 12 of remarks) that under 37 CFR 1.111(b), the "reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references" (emphasis added).

In response to the above-mentioned arguments, examiner agrees with applicant's indication that the office action did not apply any of these listed references to any of the pending claims, thereby, although 37 CFR 1.111(b) seem not to be relevant to this section of the office action, applicant's remarks have been fully considered.

12. Applicant's arguments filed in the above-mentioned amendment have been fully considered but not rendered persuasive.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prieto, B. whose telephone number is (571) 272-3902. The Examiner can normally be reached on Monday-Friday from 6:00 to 3:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Andrew T. Caldwell can be reached at (571) 272-3868. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800/4700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system, status information for published application may be obtained from either Private or Public PAIR, for unpublished application Private PAIR only (see http://pair-direct.uspto.gov or the Electronic Business Center at 866-217-9197 (toll-free).

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Hand carried or delivered to:
Customer Service Window located at the Randolph Bldg.
401 Dulany St.
Alexandria, VA 22314

Faxed to the Central Fax Office:
(571) 273-8300 (New Central Fax No.)

Or Telephone:

(571) 272-2100 for TC 2100 Customer Service Office.

B. Prieto
Primary Examiner
TC 2100
January 26, 2006

BEATRIZ PRIETO
PRIMARY EXAMINER
1/26/06